Research Report 1475

A Comparison of Survey Length with Reading Difficulty and Selected Recruit Characteristics for the 1987 USAREC Survey of Active Army Recruits

Michael E. Benedict

Manpower and Personnel Policy Research Group
Manpower and Personnel Research Laboratory

U. S. Army

Research Institute for the Behavioral and Social Sciences

May 1988

U. S. ARMY RESEARCH INSTITUTE
FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the

Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

WM. DARRYL HENDERSON
COL, IN
Commanding

Technical review by

Curtis L. Gilroy
Douglas A. McLiverty

NOTICES

DISTRIBUTION: Primary distribution of this report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-POT, 5001 Eisenhower Ave., Alexandria, Virginia 22333-5600.

FINAL DISPOSITION: This report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY --	3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE --	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ARI Research Report 1475	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Research Institute 6b. OFFICE SYMBOL (If applicable) PERI-RG	7a. NAME OF MONITORING ORGANIZATION --
6c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600	7b. ADDRESS (City, State, and ZIP Code) --
8a. NAME OF FUNDING / SPONSORING ORGANIZATION -- 8b. OFFICE SYMBOL (If applicable) --	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER --
8c. ADDRESS (City, State, and ZIP Code) --	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. 63731 / PROJECT NO. 2Q263 731A792 / TASK NO. 2.2.1. / WORK UNIT ACCESSION H1

11. TITLE (Include Security Classification)
A Comparison of Survey Length with Reading Difficulty Level and Selected Recruit Characteristics for the 1987 USAREC Survey of Active Army Recruits

12. PERSONAL AUTHOR(S)
Michael E. Benedict

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final Report	FROM 06/86 TO 08/87	1988, May	19

16. SUPPLEMENTARY NOTATION
--

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP
05	09	
05	08	

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
Army recruiting, Active Army, Media habits, Survey length, New Recruit Survey, Attitudes (Psyc

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report presents the results of analyses of test length and readability conducted on the 1987 USAREC New Recruit Survey active Army survey instrument. The report contains comparisons of test length with Test Category and other recruit demographic characteristics. Recommendations are made for the development of survey questionnaires. Keywords:

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Michael E. Benedict	22b. TELEPHONE (Include Area Code) (202) 274-5610 22c. OFFICE SYMBOL PERI-RG

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted. All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

Research Report 1475

A Comparison of Survey Length with Reading Difficulty and Selected Recruit Characteristics for the 1987 USAREC Survey of Active Army Recruits

Michael E. Benedict

Manpower and Personnel Policy Research Group
Curtis L. Gilroy, Chief

Manpower and Personnel Research Laboratory
Newell K. Eaton, Director

U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

Office, Deputy Chief of Staff for Personnel
Department of the Army

May 1988

Army Project Number
2Q263731A792

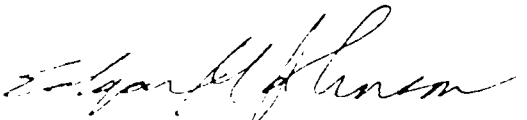
Manpower and Personnel

FOREWORD

The ARI Enlistment Decision Surveys have become an important source of information for U.S. Army policy makers and planners. Originally developed by the Army Research Institute in 1982 under a commission from the Deputy Chief of Staff for Personnel, the 1987 USAREC New Recruit Survey is the eighth of a series of research projects investigating new U.S. Army recruits. Previous surveys conducted in this series include (1) Summer 1982; (2) Summer 1983; (3) Winter 1983; (4) Summer 1984; (5) Winter 1984; (6) Summer 1985; and (7) Summer 1986.

This multiyear endeavor was conducted to measure the enlistment motivations, attitudes, knowledge, and personal characteristics of new recruits at the time of their initial entry into the U.S. Army. The ability to track changes in new recruit characteristics over time, as well as to provide an opportunity for the collection of new, policy-relevant information during each survey administration, has provided an impetus for continuing the survey efforts.

The Army Research Institute's participation in this effort is part of an on-going research program designed to enhance the quality of Army personnel. This work is an essential part of the mission of ARI's Manpower and Personnel Policy Research Group to conduct research to improve the Army's capability to effectively and efficiently recruit its personnel. Both the ARI New Recruit Surveys of 1982 and 1983 were conducted at the request of the U.S. Army Deputy Chief of Staff for Personnel. Sponsorship of the 1984, 1985, and 1986 surveys was assumed by the U.S. Army Recruiting Command, with the continuing interest of the Office of the Deputy Chief of Staff for Personnel. The Summer 1987 survey marked the first administration of the survey conducted entirely under the control of the U.S. Army Recruiting Command. Results in this report were briefed to the Chief, USAREC Advertising Research and Analysis, on 22 March 1988.



EDGAR M. JOHNSON
Technical Director

A COMPARISON OF SURVEY LENGTH WITH READING DIFFICULTY LEVEL AND SELECTED RECRUIT CHARACTERISTICS FOR THE 1987 USAREC SURVEY OF ACTIVE ARMY RECRUITS

EXECUTIVE SUMMARY

Requirement:

To ensure the quality of survey data of U.S. Army recruit respondents who provide information on enlistment motivations, attitudes, knowledge, and demographic characteristics at the time of initial entry into the service.

Procedure:

Analyses were conducted using data from 2,998 respondents to the 1987 USAREC New Recruit Survey (NRS-87) administered at the eight U.S. Army Reception Battalions during June, July, and August of 1987. Specifically, reading difficulty levels of the survey booklets were ascertained, life table analyses were conducted to determine at what point different target group members failed to complete the survey items, and analyses of variance were completed to determine the factors within target groups that most affected survey completion rates.

Findings:

Respondents taking the 1987 USAREC New Recruit Survey needed a beginning college reading level to understand and respond well to the entire set of survey items. Reading difficulty levels increase as respondents move through the survey's section, ranging in difficulty from the sixth grade to the first year of college levels. Approximately 20% of all respondents failed to complete the survey questionnaires. A direct relationship exists between AFQT Test Category and survey completion. Test Category I respondents completed the survey most often, followed in order by those individuals in Categories II, IIIA, IIIB, and IV. Future versions of the survey should be written at the lowest readability level that can still present the content of the questions. A recommended level is the sixth grade for maximum assurance that respondents will be able to read and comprehend the survey items. In addition to reducing the reading level of the instrument, a maximum survey length of 150 items (or 12 OPSCAN instrument pages) is encouraged to ensure maximum completion rates by all survey respondents.

Utilization of Findings:

The USAREC New Recruit Surveys will continue to provide information to U.S. Army policy makers and personnel planners about the quantity and quality of U.S. Army accessions. Improving the item response abiilities of all respondents will help to ensure that the maximum individual representation and precision of response is achieved without burdening the soldiers completing the questionnaire. Results of this research will enable planners to evaluate the design of subsequent USAREC New Recruit Surveys in order to continue providing useful and unbiased information about recruits.

A COMPARISON OF SURVEY LENGTH WITH READING DIFFICULTY LEVEL AND SELECTED RECRUIT CHARACTERISTICS FOR THE 1987 USAREC SURVEY OF ACTIVE ARMY RECRUITS

CONTENTS

	Page
INTRODUCTION	1
NRS Project Background	1
SURVEY INSTRUMENT DEVELOPMENT	2
Background	2
Survey Content Development	2
Survey Planning and Administration Difficulties	3
Questionnaire and Coded Variable Changes: 1982-1987	4
Implications for Survey Data Users	4
PROCEDURE AND RESULTS	5
Readability Analysis	5
Survey Length and Selected Demographic Analyses	5
Life Table Analysis	6
Implications for NRS Test Length	7
Test Length and Cumulative Completion Rates	9
RECOMMENDATIONS FOR NRS-88 AND BEYOND	9
REFERENCES	11

LIST OF TABLES

Table 1.	Percentage of respondents by category failing to complete all NRS survey items	7

LIST OF FIGURES

Figure 1.	Cumulative proportion of respondents completing NRS-87 survey items	8

A COMPARISON OF SURVEY LENGTH WITH READING DIFFICULTY LEVEL AND SELECTED RECRUIT CHARACTERISTICS FOR THE 1987 USAREC SURVEY OF ACTIVE ARMY RECRUITS

INTRODUCTION

This report is provided as a source of background documentation for current and potential users' of the data collected through the 1986 U.S. Army Research Institute's (ARI) New Recruit Survey (NRS-86) and the 1987 US Army Recruiting Command's (USAREC) New Recruit Survey. This document examines the background history of the New Recruit Survey administrations, and compares the survey instrument type and length across the years. In addition to providing background information, this document also provides information that should be of use to survey developers of future NRS-type instruments. Reading difficulty levels are computed for the 1986 and 1987 New Recruit Survey questionnaires. Using data collected during the Summer, 1987 administration of the USAREC New Recruit Survey, test length considerations are examined by analyzing characteristics of those respondents who failed to complete the entire survey with those respondents who did answer all items. Recommendations are made for future versions of the survey.

NRS Project Background

The ARI Enlistment Decision Surveys have become an important source of information to U.S. Army policy makers and planners. Originally developed by ARI in 1982 under a commission by the Deputy Chief of Staff for Personnel, the 1987 USAREC New Recruit Survey is the eighth of a series of survey research projects investigating new U.S. Army recruits. Previous survey research projects conducted in this series include: (1) Summer, 1982; (2) Summer, 1983; (3) Winter, 1983; (4) Summer, 1984; (5) Winter, 1984; (6) Summer, 1985; and (7) Summer, 1986.

This multi-year survey research endeavor has been conducted to measure the enlistment motivations, attitudes, knowledge, and personal characteristics of new recruits at the time of their initial entry into the U.S. Army. The ability to track changes in new recruit characteristics over time, as well as to provide an opportunity for the collection of new, policy-relevant information during each survey administration has provided an impetus for continuing the survey efforts.

Both the ARI New Recruit Surveys of 1982 and 1983 were conducted at the request of the U.S. Army Deputy Chief of Staff for Personnel. Sponsorship of the 1984, 1985, and 1986 surveys was assumed by the U.S. Army Recruiting Command, with the continuing interest of the Office of the Deputy Chief of Staff for Personnel. The Summer, 1987 survey marked the first

administration of the survey conducted entirely under the control of the U.S. Army Recruiting Command. Although the sponsorship and specific question content has changed across time, the basic charter for these field research surveys has remained unchanged:

- Determine who is enlisting in the U.S. Army and why.
- Determine how to target recruiting resources to attract high quality recruits.
- Determine why recent recruits joined and their propensity to remain in the service.
- Determine which recruiting and advertising practices are proving the most effective and why.

In addition to addressing these specific objectives, the survey efforts have expanded the availability of research data by which U.S. Army enlistment and reenlistment decision processes can be modeled.

SURVEY INSTRUMENT DEVELOPMENT

Background

The 1986 and 1987 NRS were the first New Recruit Surveys to make use of optically scannable survey booklets. The use of such booklets in the collection of survey-related information requires that the process of survey design and layout be approached with great care and patience. The design, layout, typesetting, keylining, and printing is accomplished using methods familiar to persons in the printing industry. Additional requirements that are unique to Optical Mark Recognition (OMR) scanning systems precludes the use of instant print or offset print shops that are commonly used to produce standard office forms. The process by which the survey content was developed and transformed into optically scannable booklets is presented in the following sections.

Survey Content Development

With minor exceptions, the format and content of the 1986 and 1987 NRS are identical. The same booklet layout, question content, and item location were used in each version. Thus, the development steps that follow are the same for both surveys. The development of the survey questionnaire content involved a three-stage review and approval process. The procedures in these stages included:

1. Researchers at ARI reviewed the questionnaire contents used in the 1984 and 1985 New Recruit Surveys for clarity, necessity of content to support ongoing in-house research efforts, and the accuracy of content in response to policy changes in order to construct the 1986 item bank. Those items that were dated due to changes in policy and/or programs were dropped from the item bank. Previously used questionnaire items were rewritten as necessary to improve their readability, response availability, and accuracy. New items were included in the 1986 and 1987 item banks to meet the needs of existing and anticipated research programs.

2. The 1986 item bank, developed by ARI, was then forwarded to the NRS sponsor (the U.S. Army Recruiting Command) and to users of NRS survey data (Office of the Deputy Chief of Staff for Personnel; Reserve Officer Training Corps; National Guard Bureau; and Office of the Chief of Army Reserve) for their review. Reviewers were asked to prioritize the entire survey item bank by determining for each item whether it (a) must be included, (b) must be included if the 1986 survey were to be reused in 1987, (c) should be included but could be omitted for both 1986 and 1987, and (d) need not be asked but could be used for segmenting responses of more high-priority items.

3. Based on the priorities assigned, a final item bank was assembled and provided to USAREC for review and approval. This item bank was then transmitted to Data Recognition Corporation for their use in developing the survey questionnaire booklets.

Survey Planning and Administration Difficulties

In the 1984 and 1985 recommendations for future administrations of the New Recruit Surveys (Celeste, Wilson, Ramsey, Elig, & Pliske, 1986) it was suggested that an item analysis be conducted prior to developing any future NRS surveys. They also recommended that the validity of survey items be determined prior to their use in the NRS surveys, and they raised questions about the consistency and missing values contained in the surveys. Not the least of the contractor's recommendations was that the final survey content be complete at least one-month before the first administration date.

None of the contractor's recommendations were implemented. The recommendations were published in the same month that the 1986 surveys were being printed. The 1986 NRS instrument was still undergoing content additions and changes as late as five days before the first administration date. The development of the 1987 USAREC NRS was also slowed by procurement delays and as a result the same instrument, with minor corrections to original proofs, was used. Further, no item analyses were conducted on any of the NRS survey series.

Questionnaire and Coded Variable Changes: 1982 - 1987

Across the years, the New Recruit surveys have increased in terms of: (1) number of questions asked, (2) number of responses possible per question, (3) number of variables coded onto the database, (4) reading difficulty level, and (5) survey form complexity.

The 1982 Original Form of the DA Survey of Personnel Entering the Army consisted of 80 questions with 211 variables entered onto the database. The Revised Form of the 1982 Survey consisted of 239 variables. The overall reading difficulty level of the 1982 series of surveys averaged at the six grade level. The 1983 Summer Survey contained from 158 to 160 questions that yielded 651 variables with a reading level equal to the 1982 series. In the Summer of 1984, recruits answered either 150 or 160 questions with a resulting variable count of 556 and an increase in reading level to the 8th grade. In the Summer of 1985 the respondents were asked from 165 to 191 questions yielding 771 variables and a reading level of some college. Finally, the 1986 and 1987 recruit respondents were asked 230 questions and the recorded variables reached 863 and 862 respectively. While a number of the variables were created during database processing and creation, the majority were the result of increased numbers of response categories and the almost tripling of the number of questions since 1982.

Despite the continual increase in the number of questions and response alternatives, the time frame for completing the NRS series of surveys has remained relatively constant. Recruits have been given approximately one (1) hour to complete the surveys. In 1982, with a maximum of 80 questions and 211 variables, this allowed for approximately 45 seconds to read, evaluate, and respond to each question. In 1987, with 230 questions, this reduced the time allowed to less than 15 seconds per question. Even with innovative skip patterns built into the instrument, the quality of a response generated in such a brief time frame is questionable.

Implications for Survey Data Users

These dramatic increases in the number of questions recruits are asked to answer suggest that the New Recruit Surveys may no longer be maximizing their function as program evaluation and evaluation instruments. Instead, the ever increasing length and complexity may have changed the instrument into a form of what psychometricians call a power test. In the classic power test, respondents must complete all sections of a test instrument in order to achieve the maximum possible score. Such instruments are deliberately designed to favor the speediest respondent with the highest ability.

The New Recruit Survey represents a type of instrument whose sole function is to collect information that will be analyzed as group data. There is no intent to select out individuals on the basis of their response acceptability or their success in completing the questionnaire. Because of the length of the questionnaire, it is possible that responses for certain categories of respondents are under-represented in later sections of the NRS. Such respondents could include recruits who differ along a range of personal and demographic variables.

PROCEDURE AND RESULTS

Readability Analysis

A readability analysis (Flesch, 1974; 1949) was conducted on the four separate sections of the 1987 New Recruit Survey. Samples of text were randomly selected from each questionnaire section and the number of sentences, sentence length, and number of syllables were evaluated. The readability results indicate that those items encountered by the recruits in the first 50 questions of the first section (Your Enlistment) should have been easily readable by respondents with reading skills at the 6th-grade level. Further into the first section, the reading difficulty increases above the 8th-grade level, at the same point as more complex skip patterns are encountered (approximately Question 90). Survey items in the second section (Leisure Time Activities), which are approximately 150 questions into the survey, require a reading level of at least high school or some college.

Survey Length And Selected Demographic Analyses

Analyses of the last survey question completed were conducted on data from the Summer 1987 USAREC New Recruit Survey by Test Category (as computed from ASVAB raw sub-test scores), ethnic group membership, rural/urban nature of residence before entering service, gender, education level, and term of enlistment. If no consistent bias was being introduced because of survey length, then it would be expected that no difference in the completion rates of the survey should exist among subcategories of each variable. An analysis of the mean number of questions answered for those respondents who did not complete the survey shows that the mean survey item completed was #205.

Respondent Gender. The completion rate of female recruits (86.6%) exceeded that of males (78.5%). Female respondents completed significantly more survey items than males (M = 227.4 versus M = 224.6). However, it is possible that this difference may be explained by the qualifications for female recruits being more rigorous in terms of AFQT and educational level, factors that are discussed separately.

Educational Level. As was expected from the reading difficulty level analysis, more recruits with some post-secondary attendance (88.2%) completed the survey than high school diploma graduates (79.3%). Non-high school diploma graduates completed the entire survey least often (75.8%). Significant differences exist between these groups in the mean number of questions answered as indicated by analysis of variance. $F(2, 2996) = 4.96$, $p < .007$. Evaluation of the separate means by the most conservative Scheffe Test indicates that post-high school diploma graduate recruits were the most successful at completing the surveys (M = 228.5) followed by high school diploma graduates (M = 224.9) and answered significantly more items than non-high school diploma graduates (M = 221.8).

AFQT Test Category. There are marked differences in the completion rates among Test Category I, II, IIIA, and IIIB/IV respondents. Eighty-eight percent (88.1%) of Category I recruits completed the entire questionnaire, compared to Category II (79.2%), Category IIIA (72.1%) and Category IIIB/IV (58.2%) recruits. Significant differences also exist between these groups in the mean number of questions answered as indicated by analysis of variance. $F(5, 2994) = 99999.99$, $p < .001$. Scheffe Test results indicate that Category I respondents were the most successful at completing the surveys (M = 228.9) and answered significantly more items than either Category IIIA's (M = 225.5), IIIB's (M = 222.5), or IV's (M = 217.5).

Ethnic Group Membership. A higher percentage of white survey respondents completed the questionnaire (82.8%) than Hispanics (76.2%), Blacks (71.8%), or Other (American Indian, Alaskan Native, Asian, and Pacific Islander) (69.6%) ethnic groups. However, after controlling for the effects of Test Category, no significant differences exist among the ethnic groups average number of questions answered on the surveys (White (M = 225.7); Black (M = 224.7); Hispanic (M = 222.8); and Other (M = 222.4).

Enlistment Term, Type of Incentive, Recruiting Brigade, Rural/Urban Residence. No reportable differences in completion rates were noted for: (1) 2-, 3-, or 4-year enlistments, (2) Army College Fund or Cash enlistment bonus recipients, (3) recruiting brigade location, or (4) residence in rural versus urban settings prior to enlistment.

Life Table Analyses

Using a life tabling technique to analyze the completion rates of various groups for the NRS survey yielded two sets of results. The first set support the ANOVA findings for the effects of AFQT Test Category. A differential survey completion life exists among the individuals of different Test Category. That is, respondents who are Test Category I complete more survey

items than Category II respondents, who complete more items than Category IIIA respondents, etc. The opposite of this is failure rate, where Category IV respondent complete fewer survey items than Category IIIB respondents. In other words, if completion of the entire questionnaire is the goal, anything short of this goal is a failure. That point in the survey where the respondent stops answering survey items is the failure event.

Table 1 contains the percentage of the last question answered by respondents on the 1987 USAREC New Recruit Survey. Based on the percentage of failures in a standard life table

Table 1

Percentage of Respondents By Category Failing to Complete All NRS Survey Items

	Survey Items Completed		
Sample (n)	1-100	101-150	151-200
Cat I; POST (18)	-	-	-
Cat I; HSDG (115)	-	-	<1.0
Cat II; POST (42)	-	-	2.4
Cat II; HSDG (824)	<1.0	<1.0	2.7
Cat II; NHSG (51)	2.0	2.0	4.0
Cat IIIA; POST (10)	-	-	-
Cat IIIA; HSDG (661)	-	<1.0	4.2
Cat IIIA; NHSG (98)	-	1.0	9.3
Cat IIIB; POST (6)	-	-	-
Cat IIIB; HSDG (999)	<1.0	<1.0	9.0
Cat IV; HSDG (67)	-	1.5	16.7

analysis, each cell contains the percent failures within each Test Category/Educational Level subgroup during different sections of the survey. Through examination, it is clear that many of those respondents who did not complete the entire survey were working on questions 150 to 200 when either administration time was up or they stopped for reasons of their own.

Overall, only 17 respondents stopped answering before Question #150. 173 respondents stopped before Question #200, and

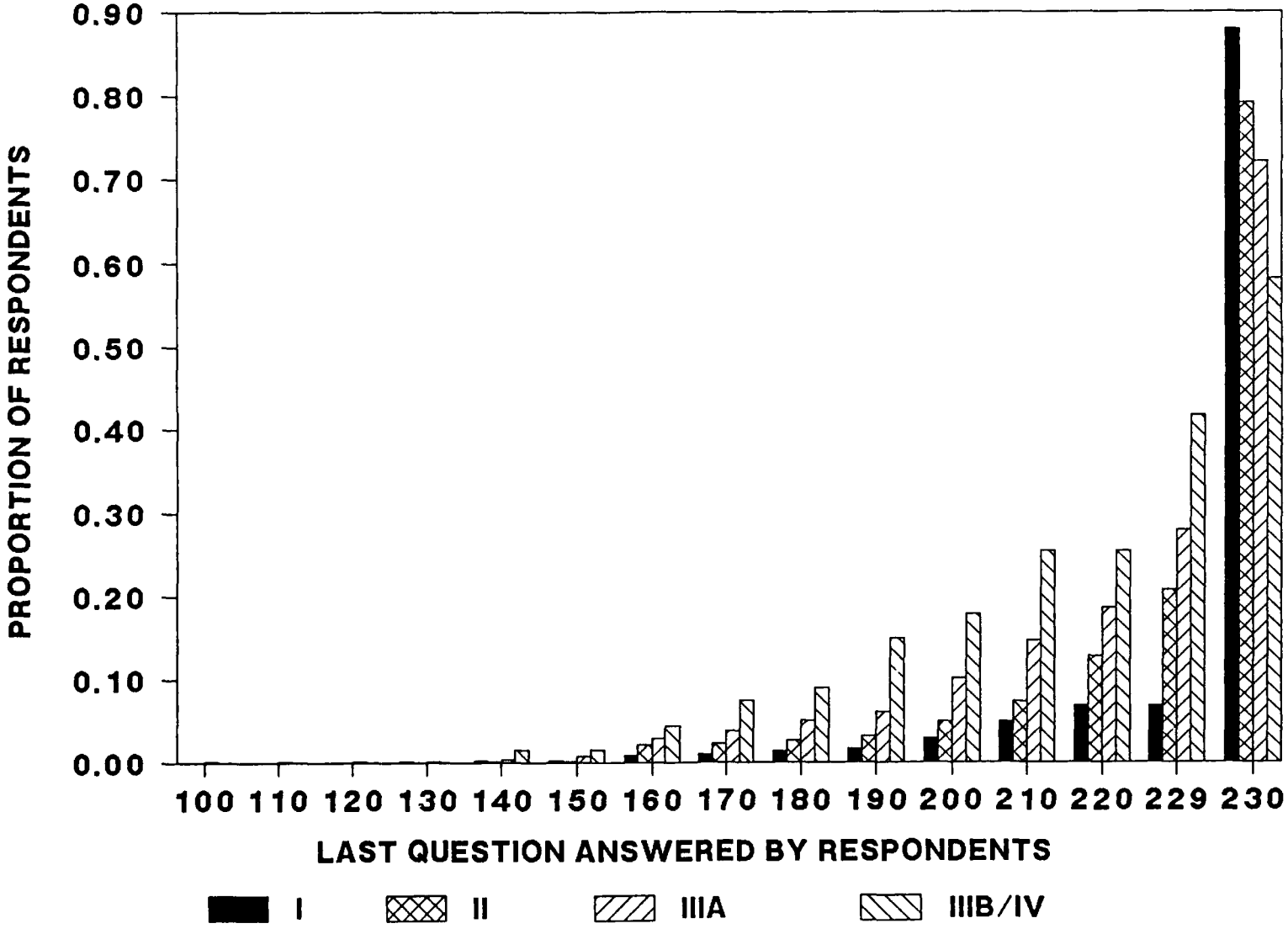


Figure 1. Cumulative proportion of respondents completing NRS - 87 survey items

the remaining 425 respondents stopped before Question 230. This means that approximately 20 percent of the recruits administered the 1987 New Recruit Survey never reached the final item.

Test Length And Cumulative Completion Rates

The graphed cumulative percentage of the last question completed by Test Category is presented in Figure 1. An examination of the graphed percentages shows that test length begins to effect completion rates for all respondents, but particularly Category IIIB/IV respondents after approximately 150 questions. By 1986 and 1987 survey booklet standards, recruits reaching this point in the survey would have answered those questions related to their enlistment activities. That means that many recruit respondents would not get to sections containing media, background, and personal demographic related questions.

For program evaluation and analysis purposes, continued use of a USAREC New Recruit Survey containing more than 150 questions of the same type and reading difficulty as exists in the 1987 questionnaire raises a question of bias and representativeness. If only responses from Test Category I to IIIA respondents are desired, then a survey containing up to 200 of the present items may be ideal. However, if comparisons are planned to other groups (such as Test Category IIIB's and IV's) there is a strong possibility that those questionnaire items that are placed toward the end of the survey will be biased. Many Category IIIB and IV respondents will not get that far into the survey. As an effective data collection instrument for all types of respondents, the present survey's length and reading difficulty levels are too great.

RECOMMENDATIONS FOR NRS-88 AND BEYOND

Based on the analyses conducted on the 1987 USAREC Survey of Active Army Recruits, the following recommendations should be incorporated into future New Recruit Survey development and administrations as well as serving as a reminder to those who may be called upon to implement any such surveys.

1. Decrease Survey Content. The New Recruit Survey series was designed to provide research program analysis and evaluation data for use by the U.S. Army. It was not intended to serve as a screening test for AFQT or educational level. The instrument should be shortened to a maximum length of 150 items and as a second measure, a page total cap of 12 single sheets should be followed. Even with such shortening of length, the recommendations that follow should be implemented.

2. Pretest the Survey Instrument. The New Recruit Surveys should be pretested on a representative of group of respondents (approximately 100) to ensure the questionnaire can be completed by most recruit respondents. The author has followed the rule that 95% or more of the respondents should be able to complete a survey used for program analysis and evaluation purposes in the allotted time frame. The pretest should consider both survey length and item understanding. We have seen that length considerations occur for different groups, but a survey must also be written at a reading and understanding level commensurate with the respondents' abilities. To insure that reading level difficulties are minimized, the questionnaire reading difficulty level should not exceed the 6th-grade level. This can be accomplished, in part, by using shortened question stems and response options, as well as by reducing the use of multi-syllabic words.

3. Explore Alternatives to Skip Patterns. Imbedded skip patterns serve the purpose of reducing respondent burden for marking inapplicable responses as well as increasing the effective size of the instrument. However, imbedded skip patterns introduced into an already onerous questionnaire make reading and following the flow of items difficult. Care should be taken to reduce the use of imbedded skip patterns to the minimum necessary to collect the needed information. Larger highlighting of skip patterns areas, the use of larger and more colorful key item screening, and the design of survey booklets to insure an imbedded skip pattern is contained on a single page may reduce errors associated with incorrectly entering the patterns.

4. Increase Administration Time Requests. One factor that can be controlled at the administration level is time. When requesting troop support for future NRS administrations, insure that the request includes sufficient time for troop movements and both administration instructions and a full time allotment in which to complete the survey.

5. Increase Survey Preparation Time. One of the most common difficulties associated with the NRS effort has been delays caused by late contracting, poor response times in evaluating item banks, and schedule disruptions caused by last-minute questionnaire changes or additions. The final item pool for a main survey instrument should be approved at least six (6) months prior to administration. Pretests should occur at least 3 months before administration. Final survey printing should occur at least one (1) month before field administration. Without such prior planning, short-cuts will and do occur.

REFERENCES

Benedict, M. E. (1987, April). The 1986 ARI Survey of U.S. Army Recruits: Technical Manual (ARI Technical Report 735). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A182 738)

Celeste, J. F., Wilson, M. J., Ramsey, V. F., Elig, T. W., & Pliske, R. M. (1986). The 1984 and 1985 ARI survey of Army recruits: Methodology and recommendations for future administrations (ARI Technical Report 706). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A180 291)

Data Recognition Corporation. (1987). 1987 USAREC New Recruit Survey technical manual: Trimester 1 report. Minneapolis, MN: Author.

Flesch, R. (1974). The art of readable writing. New York: Harper and Row.

Flesch, R. (1948). A new readability yardstick. Journal of Applied Psychology, 32, 221-223.